WHAT IS CLAIMED IS:

1   1.   A method for processing a packet to transmit on a network in a host

2   system including a plurality of network adaptors, comprising:

3   receiving at a first network adaptor a packet;

4   performing, within the first network adaptor, load balancing operations to select

5   one network adaptor to transmit the received packet; and

6   if the determined network adaptor is a second network adaptor, then forwarding,

7   with the first network adaptor, the received packet to the second network adaptor.

1   2.   The method of claim 1, further comprising:

2   determining, with the first network adaptor, whether the first network adaptor is a

3   primary network adaptor or a secondary network adaptor; and

4   transmitting, with the first network adaptor, the received packet over a network if

5   the first network adaptor is the secondary network adaptor, wherein the first network

6   adaptor performs the load balancing operations if the first network adaptor is the primary

7   network adaptor.

1   3.   The method of claim 2, wherein the load balancing operations are only

2   performed in the primary network adaptor.

1   4.   The method of claim 1, wherein performing the load balancing operations

2   comprises:

3   determining one network adaptor as a function of a destination network address to

4   which the received packet is to be transmitted over the network.

1   5.   The method of claim 4, wherein the network address comprises one of an

2   Internet Protocol address and Fibre Channel address.

1   6.   The method of claim 5, wherein determining one network adaptor as the

2   function of the target network address comprises using a hash algorithm to select one

3   network adaptor based on the target network address.

1   7.   The method of claim 1, wherein performing the load balancing operations

2   comprises:

3   determining one network adaptor based on a relative load of each of the network

4   adaptors.

1   8.   A method implemented in a device driver executing in a host system for

2   processing a packet to transmit on a network, wherein the host includes a plurality of

3   network adaptors, and wherein the device driver performs:

4   receiving a packet; and

5   initiating transmission of the packet to one network adaptor designated as a

6   primary network adaptor, wherein the primary network adaptor is capable of performing

7   load balancing operations to determine one network adaptor to transmit the received

8   packet and redirect the packet to another network adaptor to transmit the packet.

1   9.   The method of claim 8, wherein the device driver does not perform load

2   balancing operations when selecting one of the plurality of network adaptors to receive

3   the packet.

1   10.   The method of claim 8, wherein the device driver further performs:

2   detecting a failure of one network adaptor designated as the primary network

3   adaptor;

4   determining an available network adaptor to function as the primary network

5   adaptor, wherein subsequently received packets are transmitted to the determined

6   network adaptor;

7   configuring a register within the determined network adaptor to cause the

8   determined network adaptor to operate as the primary network adaptor and perform load

9   balancing operations.

1   11.   A method implemented in a device driver executing in a host system for

2   processing a packet to transmit on a network, wherein the host includes a plurality of

3   network adaptors, and wherein the device driver performs:

4   receiving a packet; and

5   initiating transmission of the packet to one network adaptor designated as a

6   primary network adaptor, wherein the primary network adaptor is capable of performing

7   load balancing operations to determine one network adaptor to transmit the received

8   packet and redirect the packet to another network adaptor to transmit the packet.

1   12.   The method of claim 11, wherein the device driver does not perform load

2   balancing operations when selecting one of the plurality of network adaptors to receive

3   the packet.

1   13.   The method of claim 11, wherein the device driver further performs:

2   detecting a failure of one network adaptor designated as the primary network

3   adaptor;

4   determining an available network adaptor to function as the primary network

5   adaptor, wherein subsequently received packets are transmitted to the determined

6   network adaptor; and

7   configuring a register within the determined network adaptor to cause the

8   determined network adaptor to operate as the primary network adaptor and perform load

9   balancing operations.

1   14.   A network adaptor in a host system in communication with an external

2   network adaptor, comprising:

3   an interface to interface with at least one external network adaptor;

4   control logic to cause the network adaptor to perform operations, the operations

5   comprising:

6   (i) receive a packet;

7   (ii) perform load balancing operations to select one network adaptor to

8   transmit the received packet; and

9   (iii) if the determined network adaptor is one external network adaptor,

10   then forwarding the received packet to the external network adaptor.

1   15.   The network adaptor of claim 14, wherein the operations caused by the

2   control logic further comprise:

3   determine whether the network adaptor is a primary network adaptor or a

4   secondary network adaptor; and

5   initiating transmission of the received packet over a network if the network

6   adaptor is the secondary network adaptor, wherein the load balancing operations are

7   performed if the network adaptor is the primary network adaptor.

1   16.   The network adaptor of claim 14, wherein the load balancing operations

2   comprise:

3   determine one network adaptor as a function of a destination network address to

4   which the received packet is to be transmitted over the network.

1   17.   The network adaptor of claim 16, wherein to determine one network

2   adaptor as the function of the target network address comprises using a hash algorithm to

3   select one network adaptor based on the target network address.

1   18.   The network adaptor of claim 14, wherein the load balancing operations

2   comprise:

3   determine one network adaptor based on a relative load of each of the network

4   adaptors.

1   19.   The method of claim 14, wherein the packets are coded using the Internet

2   Protocol (IP).

1   20.   A system coupled to a network and data storage, comprising:

2   a processor;

3   a storage controller managing Input/Output (I/O) access to the data storage;

4   a plurality of network adaptors capable of transmitting and receiving data on the

5   network;

6   a device driver, executed by the processor, to perform operations, the operations

7   comprising:

8   (i) receive a packet; and

9   (ii) initiate transmission of the packet to one network adaptor designated

10   as a primary network adaptor, wherein the primary network adaptor is capable of

11   performing load balancing operations to select one network adaptor to transmit

12   the received packet and forward the packet to another network adaptor to transmit

13   the packet.

1   21.   The system of claim 20, wherein the device driver does not perform load

2   balancing operations when selecting one of the plurality of network adaptors to receive

3   the packet.

1   22.   The system of claim 20, wherein the device driver operations further

2   comprise:

3   detect a failure of one network adaptor designated as the primary network

4   adaptor;

5   determine an available network adaptor to function as the primary network

6   adaptor, wherein subsequently received packets are transmitted to the determined

7   network adaptor; and

8   configure a register within the determined network adaptor to cause the

9   determined network adaptor to operate as the primary network adaptor and perform load

10 balancing operations.

1   23.   The system of claim 20, wherein the data storage comprises a magnetic

2   storage media.

1   24   The system of claim 23, wherein the first network adaptor performs

2   operations comprising:

3   determine whether the first network adaptor is a primary network adaptor or a

4   secondary network adaptor; and

5   initiate transmission of the received packet over a network if the first network

6   adaptor is the secondary network adaptor, wherein the first network adaptor performs the

7   load balancing operations if the first network adaptor is the primary network adaptor.

1   25.   An article of manufacture for processing a packet to transmit on a network

2   in a host system including a plurality of network adaptors, wherein the article of

3   manufacture causes operations to be performed, the operations comprising:

4   receiving at a first network adaptor a packet;

5   performing, within the first network adaptor, load balancing operations to select

6   one network adaptor to transmit the received packet; and

7   if the determined network adaptor is a second network adaptor, then forwarding,

8   with the first network adaptor, the received packet to the second network adaptor.

1   26.   The article of manufacture of claim 25, wherein the operations further

2 comprise:

3   determining, with the first network adaptor, whether the first network adaptor is a

4 primary network adaptor or a secondary network adaptor; and

5   initiating transmission, with the first network adaptor, the received packet over a

6 network if the first network adaptor is the secondary network adaptor, wherein the first

7 network adaptor performs the load balancing operations if the first network adaptor is the

8 primary network adaptor.

1   27.   The article of manufacture of claim 26, wherein the load balancing

2 operations are only performed in the primary network adaptor.

1   28.   The article of manufacture of claim 25, wherein performing the load

2 balancing operations comprises:

3   determining one network adaptor as a function of a destination network address to

4 which the received packet is to be transmitted over the network.

1   29.   The article of manufacture of claim 27, wherein determining one network

2 adaptor as the function of the target network address comprises using a hash algorithm to

3 select one network adaptor based on the target network address.

1   30.   The article of manufacture of claim 24, wherein performing the load

2 balancing operations comprises:

3   determining one network adaptor based on a relative load of each of the network

4 adaptors.

1   31.   An article of manufacture for processing a packet to transmit on a

2 network, in a host that includes a plurality of network adaptors, wherein the article of

3 manufacture causes operations to be performed, the operations comprising:

4   receiving a packet; and

5   initiating transmission of the packet to one network adaptor designated as a

6 primary network adaptor, wherein the primary network adaptor is capable of performing

7 load balancing operations to determine one network adaptor to transmit the received

8 packet and redirect the packet to another network adaptor to transmit the packet.

1   32.   The article of manufacture of claim 31, wherein the load balancing

2 operations are not performed when selecting one of the plurality of network adaptors to

3 receive the packet.

1   33.   The article of manufacture of claim 31, wherein the operations further

2 comprise:

3   detecting a failure of one network adaptor designated as the primary network

4 adaptor;

5   determining an available network adaptor to function as the primary network

6 adaptor, wherein subsequently received packets are transmitted to the determined

7 network adaptor; and

8   configuring a register within the determined network adaptor to cause the

9 determined network adaptor to operate as the primary network adaptor and perform load

10 balancing operations.